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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,678	08/08/2006	Rasmus Rettig	3807	9602

7590 05/22/2008

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EXAMINER	
WHITTINGTON, KENNETH	
ART UNIT	PAPER NUMBER
2862	
MAIL DATE	DELIVERY MODE
05/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,678	RETTIG ET AL.	
	Examiner	Art Unit	
	KENNETH J. WHITTINGTON	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 August 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/8/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Abstract

Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words.

The abstract of the disclosure is objected to because it contains two paragraphs, i.e., note the "(Fig. 7)" as second paragraph. Correction is required. See MPEP § 608.01(b).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gap having a predetermined curved contour as recited in claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 6 is objected to because of the following informalities: "the flux-conducting plate" lacks clear antecedent basis in view of claim 5 which recites "flux-conducting plates". Thus, it is unclear which plate is recited in claim 6. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Eckardt et al. (US4712064), hereinafter Eckardt.

Regarding claim 1, Eckardt discloses a magnetic sensor arrangement, having

magnetically sensitive sensor elements whose electrical properties are changeable as a function of a magnetic field that a moving, passive transmitter element is able to influence (See Eckardt FIGS. 8-9, note pair of sensors 18),

wherein the magnetic sensor arrangement has two sensor elements in a gradiometer arrangement (See col. 5, lines 8-32) that are each respectively associated with one of two regions of a permanent magnet embodied in the form of a gap magnet (See FIGS. 8-9, note face regions of magnet 13), which regions are spaced apart from each other by a predetermined distance (See FIGS. 8-9, note regions separate by gap 17),

the magnetic regions and the permanent gap magnet in terms of the dimensions, the gap width, the gap depth, and their positions in relation to the sensor elements are situated so as

to minimize the offset of the output signal of the sensor elements in the gradiometer arrangement (See col. 5, lines 8-32).

Regarding claim 3, Eckardt discloses the gap of the permanent gap magnet has a rectangular contour (See FIGS. 8-9, note gap 17).

Regarding claim 8, Eckardt discloses the magnetic sensor arrangement is used to detect the rotation angle of a wheel serving as the transmitter element, and the circumference of the wheel is provided with teeth in order to influence the magnetic field in the region of the magnetic sensor arrangement (See FIGS. 8-9, note wheel 28).

Regarding claim 10, Eckardt discloses the sensor elements are magnetoresistive XMR sensors (See FIGS. 8-9, note sensors 18 and disclosure related thereto).

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yokotani et al. (US6107793), hereinafter Yokotani.

Regarding claim 1, Yokotani discloses a magnetic sensor arrangement, having

magnetically sensitive sensor elements whose electrical properties are changeable as a function of a magnetic field that

a moving, passive transmitter element is able to influence (See Yokotani FIGS. 2-6, note sensor 3 can be a plurality of sensors in differential connection as shown in FIG. 9, item 11),

wherein the magnetic sensor arrangement has two sensor elements in a gradiometer arrangement (See FIGS. 2-6, note sensor 3 can be a plurality of sensors in differential connection as shown in FIG. 9, item 11) that are each respectively associated with one of two regions of a permanent magnet embodied in the form of a gap magnet (See FIGS. 2-6, note upper regions of magnet 20 with sensor 3 therebetween, note face regions of magnet 13), which regions are spaced apart from each other by a predetermined distance (See FIGS. 2-6, note gap between regions forming curved gap or wedge),

the magnetic regions and the permanent gap magnet in terms of the dimensions, the gap width, the gap depth, and their positions in relation to the sensor elements are situated so as to minimize the offset of the output signal of the sensor elements in the gradiometer arrangement (See col. 3, line 44 to col. 4, line 7).

Regarding claim 2, Yokotani discloses the gap has a contour with a wedge-shaped narrowing in the direction of the gap depth of the permanent gap magnet (See FIG. 4, note magnet 20A).

Regarding claim 4, Yokotani discloses the gap has a predetermined curved contour in the direction of the gap depth of the permanent gap magnet (See FIGS. 2 and 6, note magnet 20 or the magnet combination of 21 and 22).

Claims 1, 5 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Steinruecken et al. (US2003/0155909), hereinafter Steinruecken.

Regarding claim 1, Steinruecken discloses a magnetic sensor arrangement, having

magnetically sensitive sensor elements whose electrical properties are changeable as a function of a magnetic field that a moving, passive transmitter element is able to influence (See Steinruecken FIG. 11, note sensor 3 and see paragraph 0035, for a plurality of sensors in differential connection),

wherein the magnetic sensor arrangement has two sensor elements in a gradiometer arrangement (See FIG. 11, note sensor 3 and see paragraph 0035, for a plurality of sensors in differential connection) that are each respectively associated with one of two regions of a permanent magnet embodied in the form of a gap magnet (See FIG. 11, note regions of magnet assembly between pieces 7a and 7b and sensors there between associated therewith), which regions are spaced apart from each

other by a predetermined distance (See FIG. 11, note gap between magnet assembly 7a and 7b),

Regarding claim 5, Steinruecken discloses flux-conducting plates are positioned between the sensor elements and the magnetic regions (See FIG. 11, note plates 7a and 7b).

Regarding claim 6, Steinruecken discloses the flux-conducting plate is embodied in the form of a compact element into which the gap is integrated (See FIG. 11, note gap is integrated between plates 7a and 7b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eckardt in view of Busch et al. (US2003/0107366), hereinafter Busch. Regarding this claim, Eckardt teaches the feature of claim 1 as noted above, but not any rotation of the magnetization of the magnet. Busch teaches

a gear tooth sensor arrangement or wheel speed sensor arrangement comprising rotating the magnetization of the magnet and therefor all regions thereof by a predetermined angle away from its longitudinal direction oriented toward the sensor elements (See Busch paragraphs 0013-0019). It would have been obvious at the time the invention was made to use the rotation of the magnet axis as taught by Busch in the sensor arrangement of Eckardt. One having ordinary skill in the art would do so to balance the sensor arrangement and provide a better sensing over temperature variations (See Busch paragraphs 0015-0019).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eckardt in view of Higgs et al. (US4859941), hereinafter Higgs. Regarding this claim, Eckardt teaches the wheel is made from a non-magnetic material, but not explicitly the precise material. Higgs teaches a method for measuring the passing of a magnetic wheel using a pair of sensor mounted to a magnet, wherein the magnetic wheel is made from steel (See Higgs FIG. 1, item 20 and disclosure related thereto). It would have been obvious at the time the invention was made to use steel for the wheel in the apparatus of Eckardt. One having ordinary skill in the art would do because steel is a common material for such tooth gear wheels as noted in Higgs in the cited portion.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US7119539, US7045997, US6498474 and US5304926 each teach varying designs for tooth wheel sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH J. WHITTINGTON whose telephone number is (571)272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Kenneth J Whittington/
Primary Examiner, Art Unit 2862